

## Los Angeles County Department of Public Health Hospital Questionnaire Regarding Nurse Competency & Education in Antimicrobials: A Summary

*Literature suggests that nursing activities overlap with antimicrobial stewardship program activities and efforts; however, this concept has not been well measured. This questionnaire was sent out to Los Angeles County (LAC) hospitals in November 2015 to assess bedside registered nurses' current competency/responsibility and education around appropriate antimicrobial use.*

*Total responses: 34 out of 93\* LAC hospitals*

Hospital Characteristic	Respondents (n=34)	Non-respondents (n=59)
	Median (range)	Median (range)
Bed size	220 (36-603)	237 (12-912)
Average daily census	155 (0-466)	126 (4-782)
Number of Infection Preventionists (IPs)	2 (1-4)	2 (1-12)

The differences between the respondents and non-respondents were not statistically significant.

\*6 hospitals in the City of Long Beach were not included in this analysis.

### Who took the questionnaire?

- The questionnaire was designed for the person at the facility who could best speak to nurse education and competency. In most cases (n = 16) this was the Director of Nursing Education; however, (n = 9) surveys were also filled out by Clinical Nurse Specialists (CNS)/Bedside Nurse Educators, Director of Nursing (DON)/Chief Nursing Officers (n=4), and other nurse administrators (n = 5) (*Figure 1A*).
- Out of the 34 hospitals who completed the questionnaire, 24 of them had additionally completed a different survey<sup>1</sup> describing their antimicrobial stewardship program. Based on the results of that survey, it was possible to categorize the respondents' antimicrobial stewardship programs using the California Department of Public Health (CDPH) criteria<sup>2</sup>. Hospitals that had a basic antimicrobial stewardship program accounted for n=6 (18%) of the respondents; n=8 (24%) had an intermediate antimicrobial stewardship program; and 10 (29%) had an advanced program. The remaining 10 (29%) were unable to be categorized as they had not completed the second survey sent in November 2015<sup>1</sup> (*Figure 1B*).

1. Hospital Questionnaire Regarding Antimicrobial Stewardship Programs (2015). Los Angeles County Department of Public Health.

2. California Antimicrobial Stewardship Program Initiative <http://www.cdph.ca.gov/programs/hai/Pages/antimicrobialStewardshipProgramInitiative.aspx>

## **MAJOR FINDINGS**

***Each question was mandatory to complete the questionnaire, thus the percentages reported represent the percentage out of the hospitals that responded. For one hospital, three CNS staff responded, so their answers were each weighted as 1/3 for that hospital.***

### **Prior to ordering antimicrobials:**

- When an antimicrobial (such as penicillin) is inappropriately listed as an allergy, other antimicrobials may also become eliminated as medication options, reducing the prescriber's choices for optimal treatment. 97% of the hospitals represented in this questionnaire require bedside registered nurses (RNs) to appropriately assess allergies.
  - **Implication:** By incorporating allergy assessment into their patient assessment, bedside RNs may be able to verify allergies and potentially increase antimicrobial medication options available to that patient<sup>1</sup>.

### **Ordering Antimicrobials:**

- Facilities were asked how often bedside RNs take phone and/or verbal orders from the physicians for antimicrobials: 15% of hospitals reported this happened most of the time and 24% hospitals reported this happened about half the time (*Figure 2*).
  - **Implication:** Bedside RNs may have frequent opportunities to clarify the indication of a treatment prior to ordering or administering.
- Some antibiotic use may be attributed to pressure on providers when patients or their family members expect antibiotic treatment<sup>2</sup>. 67% of respondents reported that bedside RNs are required to educate patients about *appropriate* antimicrobial use, and an additional 27% offer bedside RNs the tools to educate their patients (*Figure 3*). 91% of hospitals offer education to their bedside RNs in understanding the relationship between antimicrobial use and antimicrobial resistance (*Figure 4*).
  - **Implication:** Nurses have the most consistent presence at the bedside and likely communicate with patients and their families the most. By educating patients and their families on appropriate indications for antimicrobials, bedside RNs may be able to curb expectations for antimicrobials.
    - Furthermore, bedside RNs have been shown to influence prescribing; with increased awareness, that influence can be redirected to more judicious use of antimicrobials<sup>3</sup>.

### **Administering and Evaluating Treatment:**

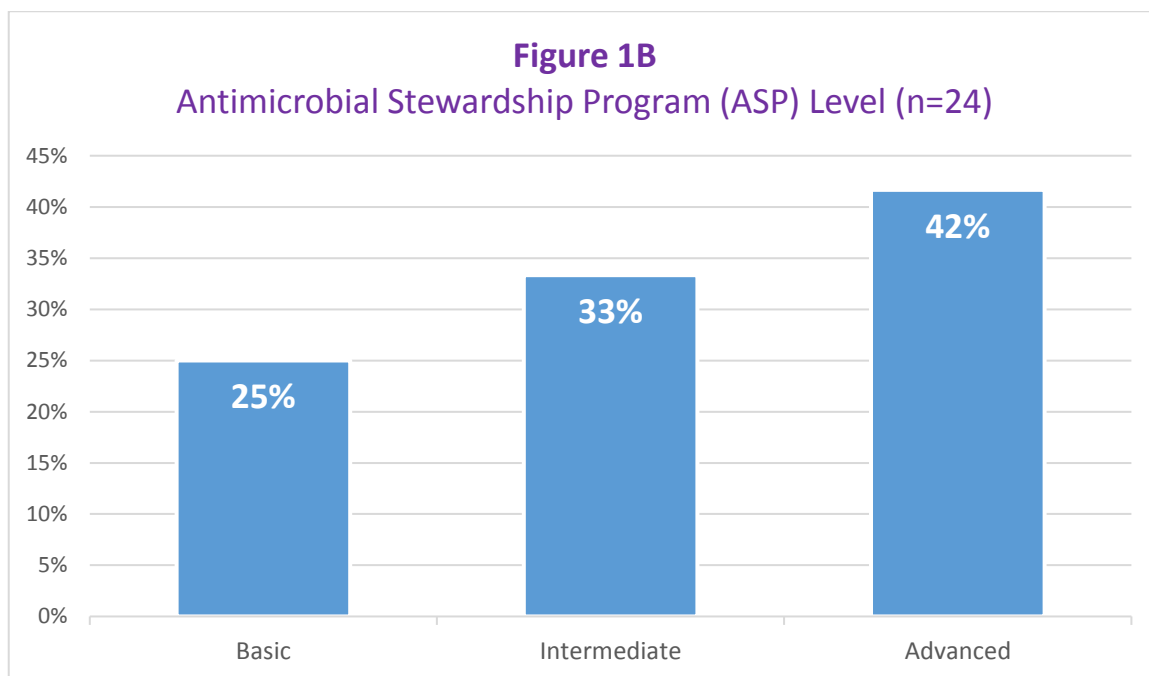
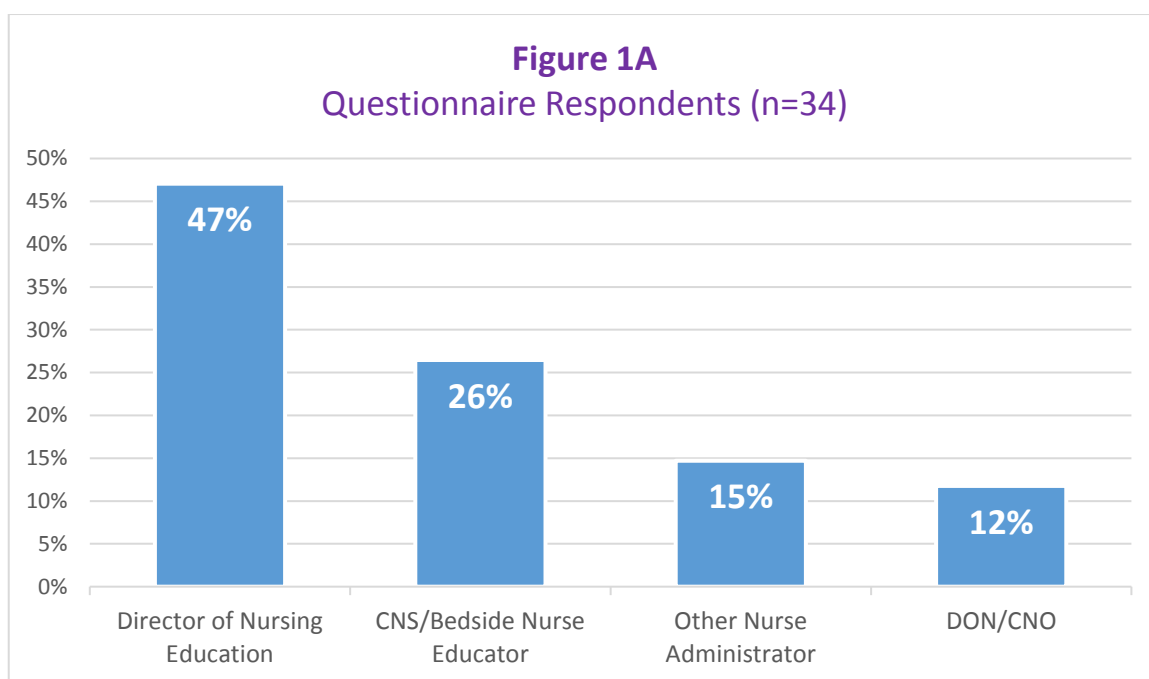
- Antimicrobial use can be narrowed down for optimal treatment. 82% of hospitals offer education to their bedside registered nurses in identification of broad-spectrum antibiotics (*Figure 5*). 48% of hospitals reported it is mandatory for bedside RNs to interpret culture/susceptibility results, and an additional 33% offer training in that interpretation (*Figure 6*). 67% of respondents required their bedside RNs to be competent in monitoring therapeutic levels of antimicrobials, while 21% offer that education (*Figure 7*). Finally, 36% of hospitals reported that treatment specificity knowledge of antimicrobials is mandatory/required for bedside RNs, with an additional 45% offering education on treatment specificity (*Figure 8*).
- Hospitals were asked which members of the patient care team received critical microbiology lab results: 92% reported that the bedside RN was notified, and four hospitals reported that the bedside RN was notified while the physician was not directly notified (*Figure 9*).
  - **Implication:** Empowering bedside RNs to manage care based on the results made available to them first can maximize timing and appropriateness of treatments. For example, if a nurse receives critical microbiology results or discovers an infection is not susceptible to the current treatment that is ordered for them to administer, the nurse can notify the physician first.

1. Ladenheim, D., Rosembert, D., Hallam, C., & Micallef, C. (2013). Antimicrobial stewardship: The role of the nurse. *Nursing Standard*, 28(6), 46-49.

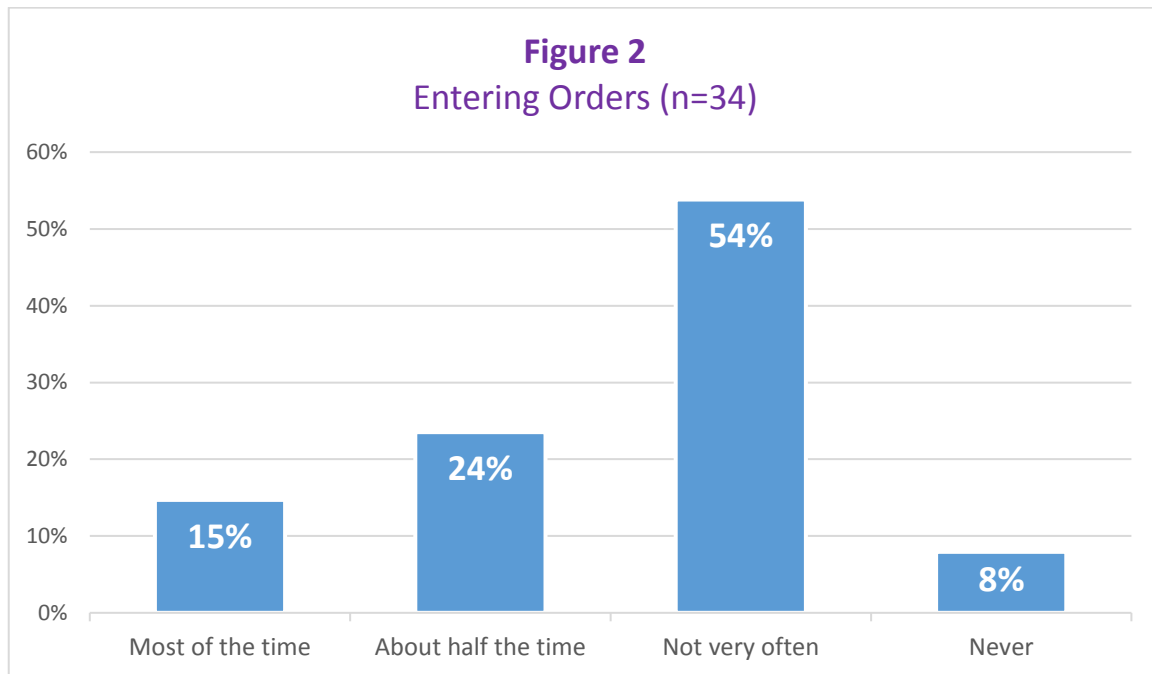
2. Ackerman, S., Gonzales, R., Stahl, M., & Metlay, J. (2013). One size does not fit all: evaluating an intervention to reduce antibiotic prescribing for acute bronchitis. *BMC Health Services Research*, 13: 462. doi: 10.1186/1472-6963-13-462

3. Jutel, A., & Menkes, D. (2010). Nurses' reported influence on the prescription and use of medication. *International Nursing Review*, 57(1), 92-97.

## Who Took the Questionnaire?



**Question:** “At your facility, how often do bedside registered nurses take phone and/or verbal orders from the physician for antimicrobials?”



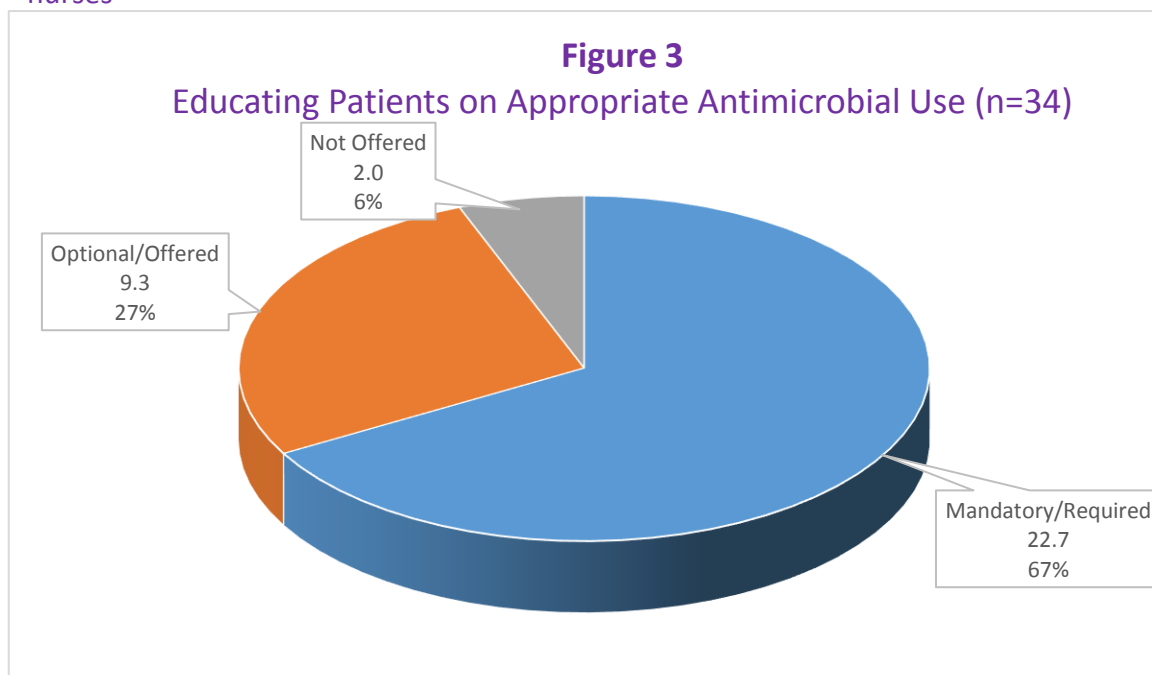
### Competency and Education Question Series:

“For each of the following topics, select as follows...

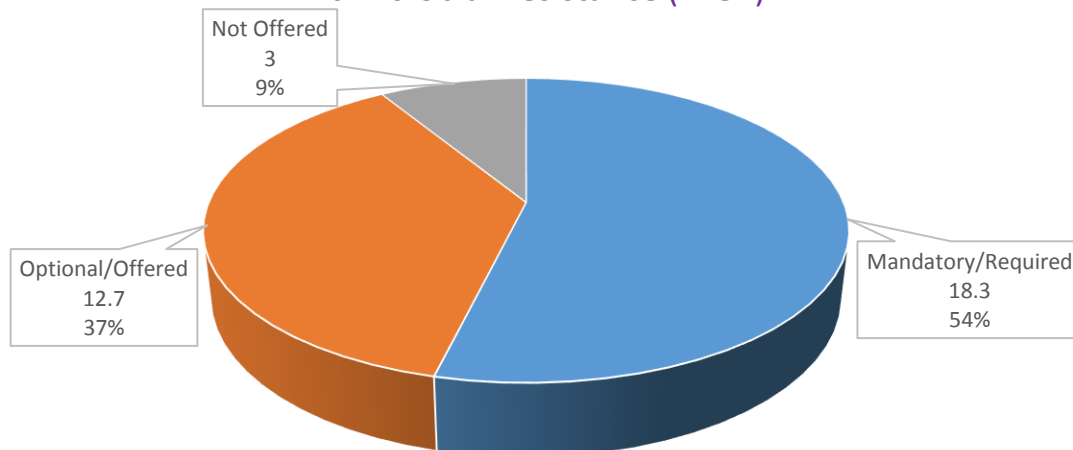
**"Mandatory/Required"** if the topic is required for bedside registered nurse competency/skills labs/mandatory education

**"Optional/Offered"** if education on that particular topic is offered to bedside registered nurses by your facility, but not mandatory

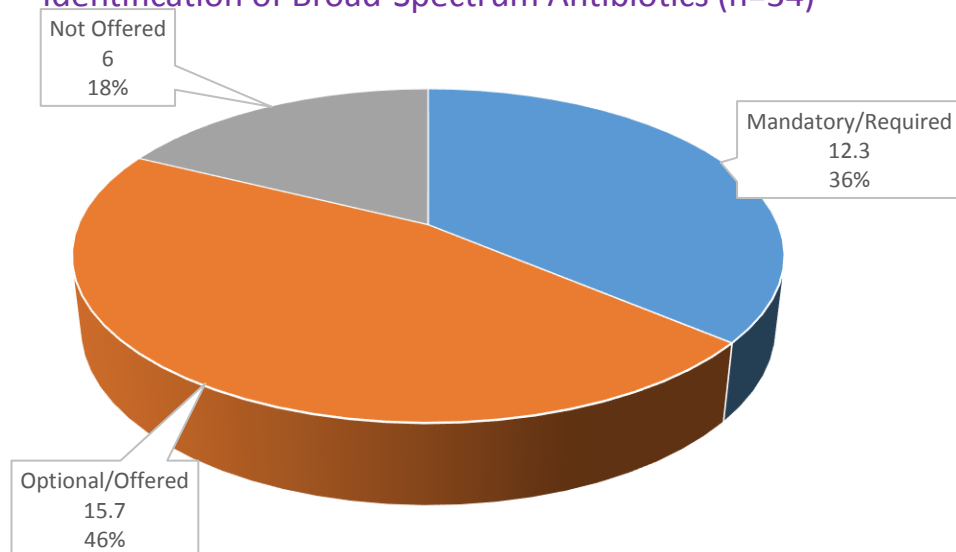
**"Not offered"** if the education on that particular topic is not available to bedside registered nurses”



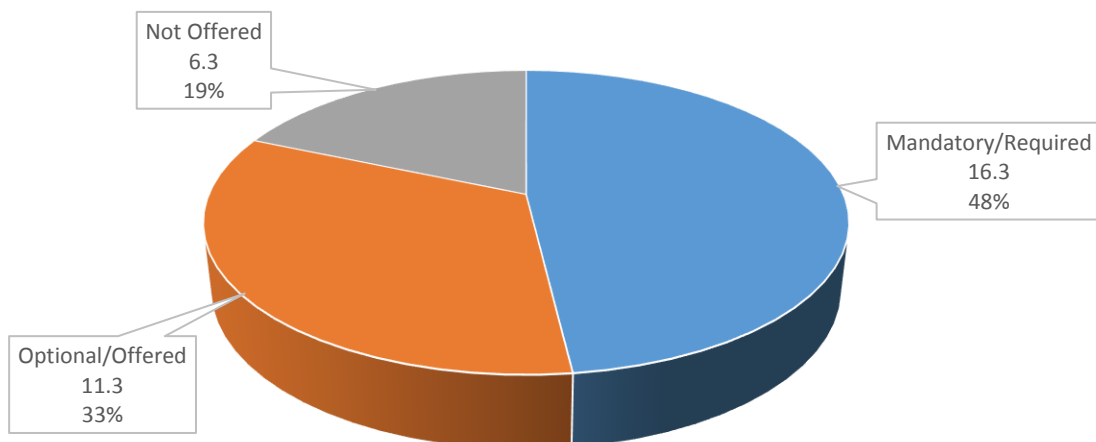
**Figure 4**  
The Relationship Between Antimicrobial Use and  
Antimicrobial Resistance (n=34)



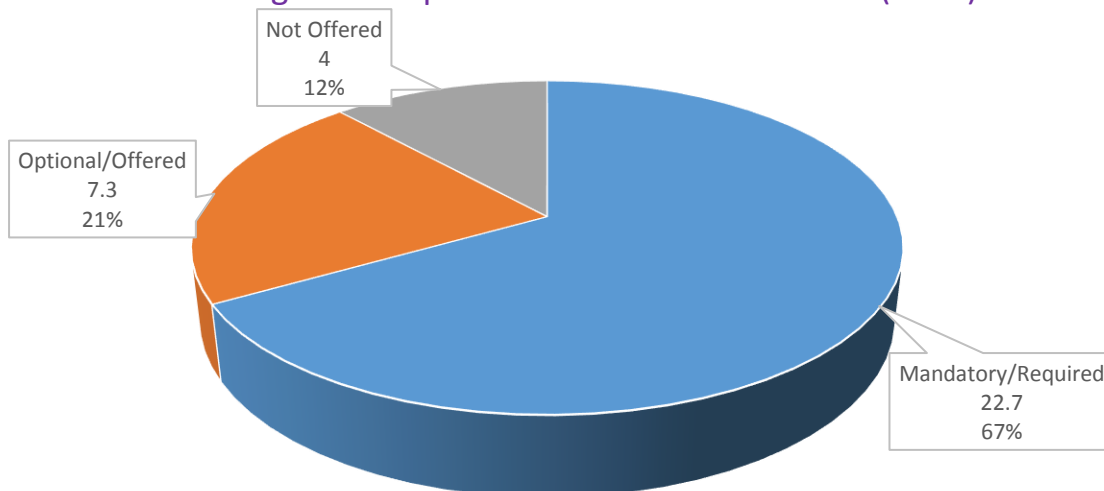
**Figure 5**  
Identification of Broad-Spectrum Antibiotics (n=34)



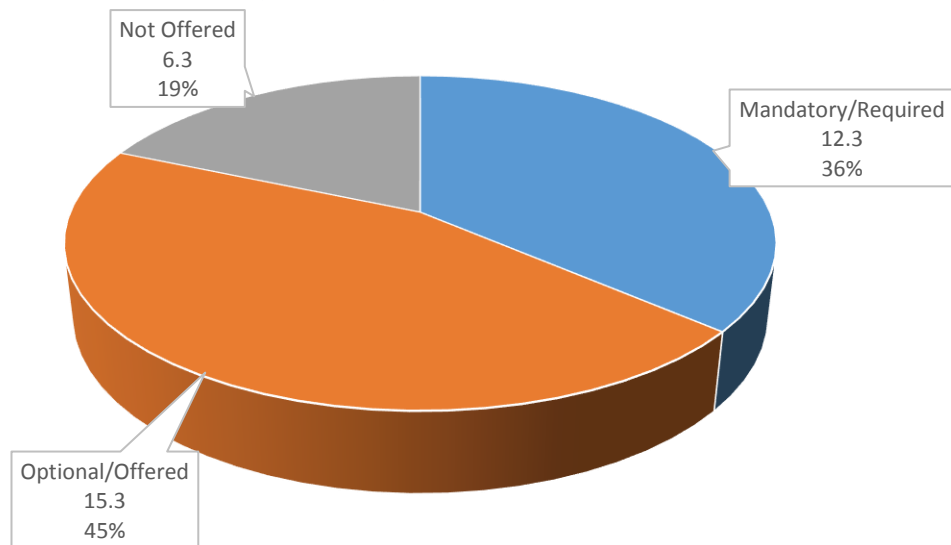
**Figure 6**  
Interpreting culture & susceptibility results from  
microbiology laboratory results (n=34)



**Figure 7**  
Monitoring of Therapeutic Levels of Animicrobials (n=34)



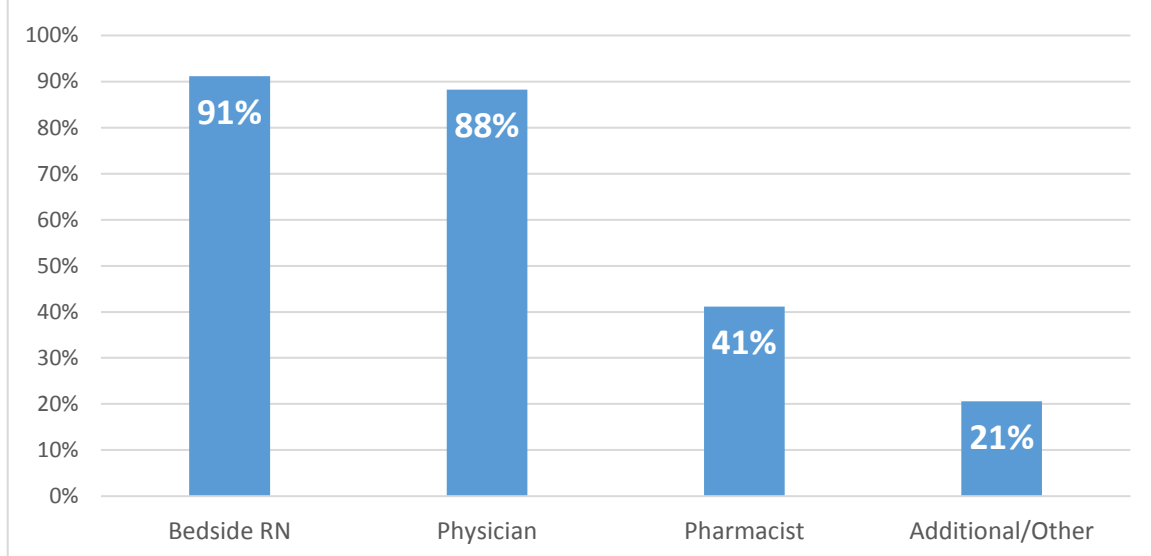
**Figure 8**  
**Treatment Specificity of Antimicrobials (n=34)**



**Question:** "To whom are critical microbiology laboratory results reported?"

*(Select all that apply)*

**Figure 9**  
**Who to Report Microbiology Results to (n=34)**



**RESOURCES FOR HOSPITALS:**

- CDC Core Elements of ASP: <http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html>
- IDSA/SHEA ASP Guidelines (2016): <http://idac.org/ASP%20IDSA%20Guidelines.pdf>
- NQF ASP Playbook (2016):  
[http://www.qualityforum.org/Publications/2016/05/Antibiotic Stewardship Playbook.aspx?utm\\_source=internal&utm\\_medium=link&utm\\_term=ABX&utm\\_content=Playbook&utm\\_campaign=ABX](http://www.qualityforum.org/Publications/2016/05/Antibiotic_Stewardship_Playbook.aspx?utm_source=internal&utm_medium=link&utm_term=ABX&utm_content=Playbook&utm_campaign=ABX)
- Coming soon: LACDPH inter-facility transfer form; regional summary of healthcare-associated infections and drug-resistant organisms; and materials to improve antibiotic prescribing as part of CDC's Get Smart about Antibiotics Week.
  - For more information about Get Smart about Antibiotics Week, please visit:  
<http://www.cdc.gov/getsmart/community/index.html>
- For more information and resources, please visit the Acute Communicable Disease Control website:  
<http://publichealth.lacounty.gov/acd/AntimicrobialStewardship.htm>

*If you have any questions, concerns, or would like to work more with LACDPH, please do not hesitate to reach out to any of the following staff in the Healthcare Outreach Unit:*

- Your LACDPH Liaison Public Health Nurse
- Crystal Cadavid (Public Health Nurse): [ccadavid@ph.lacounty.gov](mailto:ccadavid@ph.lacounty.gov)
- Sandeep Bhauria (Epidemiology Analyst): [sbhauria@ph.lacounty.gov](mailto:sbhauria@ph.lacounty.gov)
- Patricia Marquez (Epidemiologist): [pmarquez@ph.lacounty.gov](mailto:pmarquez@ph.lacounty.gov)
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